

ASSIGNMENT 5

Textbook Assignment: "Antisubmarine Warfare," chapter 4, pages 4-17 through 4-28.

5-1. MAD equipment must be operated at very low altitudes for which of the following reasons?

1. To place the detector as close as possible to the anomaly
2. To minimize noise caused by the ionosphere
3. To prevent high-voltage arc-over in the detector
4. To prevent detection by the submarine's radar

5-2. MAD equipment must be capable of detecting distortion of the earth's magnetic field at a rate of 1 part in

1. 90,000
2. 80,000
3. 60,000
4. 40,000

IN ANSWERING QUESTIONS 5-3 THROUGH 5-5, REFER TO FIGURE 4-23 IN THE TEXTBOOK.

5-3. What does the zero reference line represent in view C?

1. The points of the anomaly where maximum concentration of the earth's field is located
2. The path traveled by the aircraft in determining the parameters of the anomaly
3. The intensity of the earth's field at a given latitude and longitude after distortion by a ferrous metal mass
4. The intensity of the earth's field at a given latitude and longitude under normal conditions

5-4. Position d of view A is represented by what value on the anomaly record shown in view C?

1. 0.4
2. 0.2
3. 0.1
4. 0.0

5-5. What position in view A represents where a peak minus intensity is reached?

1. f
2. e
3. d
4. c

5-6. Which of the following items determines the stylus swing magnitude in a MAD recorder?

1. Recorder calibration
2. Magnetometer alignment
3. Stronger signal at higher altitude
4. Anomaly signal intensity

5-7. With MAD equipment, what two major categories of magnetic noise must be compensated for?

1. Permanent magnetic and induced magnetic noise
2. Maneuver and permanent magnetic noise
3. Maneuver and direct current circuit noise
4. Induced magnetic and direct current circuit noise

5-8. Aircraft maneuver noise may be caused by which of the following types of fields?

1. Induced magnetic, permanent, and eddy current
2. Induced magnetic, permanent, and direct current
3. Induced magnetic, direct current, and eddy current
4. Permanent, direct current, and eddy current

IN ANSWERING QUESTIONS 5-9 THROUGH 5-12,
SELECT FROM COLUMN B THE CAUSE OF EACH
TYPE OF MAGNETIC NOISE LISTED IN COLUMN A.

<u>A. TYPES OF NOISE</u>	<u>B. CAUSES</u>
--------------------------	------------------

- | | |
|------------------------------|---|
| 5-9. Induced magnetic field | 1. An aircraft electrical load change |
| 5-10. Eddy current field | 2. The parts of an aircraft's structure |
| 5-11. Permanent magnet field | 3. An aircraft flight direction change |
| 5-12. Direct current circuit | 4. The current flow in the aircraft structure |

5-13. Which of the following is NOT an axial coordinate term used to describe the direction of a magnetic field?

1. Vertical
2. Horizontal
3. Lateral
4. Longitudinal

5-14. Which of the following types of fields are constant for a given type of aircraft?

1. Eddy current and direct current circuit
2. Induced magnetic and permanent magnetic
3. Eddy current and induced magnetic
4. Permanent magnetic and direct current circuit

5-15. The detecting head is placed in a magnetically quiet area to compensate for what type of magnetic noise?

1. Permanent magnetic field
2. Induced magnetic field
3. Direct current circuit
4. Eddy current field

5-16. What type of magnetic noise is normally compensated for by the use of Permalloy strips?

1. Permanent magnetic field
2. Induced magnetic field
3. Direct current circuit
4. Eddy current field

5-17. Outrigger compensators of Permalloy are oriented near the detecting element to compensate for a magnetic field that varies under which of the following conditions?

1. After major internal structural changes are made to the aircraft
2. When the aircraft's direct current load changes
3. When the aircraft's heading changes
4. According to the rate at which a maneuver is conducted

5-18. Electrical coils are used to compensate for which of the following aircraft magnetic fields?

1. Permanent
2. Induced
3. Direct current circuit
4. Eddy current

5-19. Electromagnetic compensating loops are used to compensate for what aircraft magnetic field?

1. Permanent
2. Induced
3. Direct current circuit
4. Eddy current

- 5-20. The number of what factor determines how many sets of compensating loops that are used to compensate for dc magnetic noise on an aircraft?
1. Aircraft axes requiring compensation
 2. Aircraft magnetic fields requiring compensation
 3. Aircraft dc load distribution centers
 4. Aircraft detector magnetometers used
- 5-21. Of the following manufacturing practices, which one minimizes the size of the electromagnetic compensating loops used in newer aircraft?
1. Installing ground return wires in the aircraft
 2. Removing the ground return wires in the aircraft
 3. Increasing the size of the variable resistor connected across the loops
 4. Decreasing the size of the variable resistor connected across the loops
- 5-22. What are the flight characteristics of an aircraft during adjustment of the MAD dc compensation system?
1. Straight and any heading
 2. Level and any heading
 3. Straight and level, and two cardinal headings
 4. Straight and level, and four cardinal headings
- 5-23. MAD equipment compensation is usually performed under which of the following conditions?
1. On a test bench at AIMD
 2. With a test set at compass rose
 3. In flight at sea
 4. In flight over land
- 5-24. What is the purpose of MAD compensation?
1. To eliminate all magnetic fields near the magnetometer
 2. To eliminate the effect of the earth's natural magnetic field on the magnetometer
 3. To balance the magnetic field of the magnetometer
 4. To balance the magnetic fields near the magnetometer
- 5-25. Due to the arrangement of the helium absorption cells and the IR detectors, the final output of what component of the AN/ASQ-81 MAD set is NOT affected by aircraft maneuvers?
1. AM-4535
 2. DT-323
 3. DT-355
 4. C-6983
- 5-26. What component detects the anomaly signal from the AN/ASQ-81 MAD set magnetic detector output signal?
1. AM-4535
 2. DT-323
 3. DT-355
 4. C-6983
- 5-27. On the AN/ASQ-81 MAD set amplifier-power supply, what switch is used to check the quick replaceable assemblies in the amplifier-power supply?
1. RES OSC ADJ switch
 2. CONF SELECT switch
 3. BUILT IN TEST switch
 4. MODE SELECT switch
- 5-28. On the maintenance panel of the AN/ASQ-81 MAD set amplifier-power supply, what switch is used to select various system configurations necessary for proper maintenance and troubleshooting?
1. RES OSC ADJ switch
 2. CONF SELECT switch
 3. BUILT IN TEST switch
 4. MODE SELECT switch

5-29. What component contains the operating switches and indicators for the AN/ASQ-81 MAD system?

1. AM-4535
2. DT-323
3. DT-355
4. C-6983

IN ANSWERING QUESTIONS 5-30 THROUGH 5-32, REFER TO FIGURE 4-27 IN THE TEXTBOOK.

5-30. What indicator number indicates an amplifier failure?

1. No. 1
2. No. 2
3. No. 3
4. No. 4

5-31. What knob inhibits system output when depressed?

1. **yFS**
2. REC ZERO
3. BANDPASS (right)
4. BANDPASS (left)

5-32. What knob is used to select sensitivity ranges or self-test?

1. **yFS**
2. REC ZERO
3. BANDPASS (right)
4. BANDPASS (left)

5-33. The SAD inhibit signal is generated in cases of excessive aircraft pitch and yaw rates.

1. True
2. False

5-34. Compensation currents for the MAD boom compensation coils are provided by what component of the AN/ASA-65 magnetic compensator group?

1. AM-6459
2. C-8935
3. CP-1390
4. ID-2254

5-35. The potentiometers for adjusting the maneuver and correlated signals into compensating terms are located on what AN/ASA-65 system component?

1. AM-6459
2. C-8935
3. CP-1390
4. ID-2254

IN ANSWERING QUESTIONS 5-36 THROUGH 5-38, REFER TO FIGURE 4-28 IN THE TEXTBOOK.

5-36. The adjustment index for the potentiometer in the transverse, longitudinal, and vertical magnetometer circuits is provided by what set of index indicators?

1. The top three
2. The bottom three
3. The top six
4. The bottom six

5-37. Except when compensation is required, in what position must the MAG TERM knob be?

1. UP
2. DOWN
3. ON
4. OFF

5-38. What switch provides voltage directly to the servomotor selected?

1. POWER-OFF
2. UP-DOWN
3. RATE
4. SERVO-OFF

5-39. Three coils oriented to sense magnetic strength in each of the basic axes are contained in what component of the AN/ASA-65 magnetic compensator group?

1. DT-355
2. CP-1390
3. ID-2254
4. DT-323

5-40. The adjustment value for the nine magnetic terms is calculated simultaneously by what component of the AN/ASA-65 magnetic compensator group?

1. DT-355
2. CP-1390
3. ID-2254
4. DT-323

5-41. The operator initiates auto compensation on what component of the AN/ASA-65 magnetic compensator group?

1. C-8935
2. CP-1390
3. ID-2254
4. DT-323

IN ANSWERING QUESTIONS 5-42 THROUGH 5-44, REFER TO FIGURE 4-29 IN THE TEXTBOOK.

5-42. What component initiates all commands?

1. MODE switch
2. WPN LOAD switch
3. EXEC button
4. BITE button

5-43. What component provides computer identification and control of fixed compensation functions?

1. MODE switch
2. WPN LOAD switch
3. EXEC button
4. BITE button

5-44. What component provides compensation for at least 80 percent of the weapons interference field?

1. MODE switch
2. WPN LOAD switch
3. EXEC button
4. BITE button

5-45. What component of the AN/ASA-71 selector group selects the signal to be recorded on the MAD recorder?

1. C-7693
2. C-8935
3. RO-32
4. MX-8109

5-46. What component of the AN/ASA-71 selector group generates a SAD mark 1-kHz tone for the SENSOR operator's ICS?

1. C-7693
2. C-8935
3. RO-32
4. MX-8109

5-47. What component makes a hardcopy of MAD contacts and SAD marks?

1. C-7693
2. C-8935
3. RO-32
4. MK-8109

5-48. Where should the black pen trace on the MAD recorder with B selected on the mode knob?

1. The +4 line
2. The +2 line
3. The +1 line
4. The zero line

5-49. All sonobuoys perform the same mission?

1. True
2. False

5-50. When an area of the ocean is thought to contain a submarine, what minimum number of sonobuoy(s) is/are usually dropped?

1. One
2. Two
3. Three
4. Four

- 5-51. What type of RF output signal is transmitted from a sonobuoy antenna?
1. Frequency modulated VHF signal
 2. Frequency modulated UHF signal
 3. Amplitude modulated VHF signal
 4. Amplitude modulated UHF signal
- 5-52. You should refer to which of the following manuals before handling, storing, or disposing of sonobuoys?
1. NAVAIR 28-AQS-500-1
 2. NAVAIR 28-ASQ-500-1
 3. NAVAIR 28-SQS-500-1
 4. NAVAIR 28-SSQ-500-1
- 5-53. What total number of channels are selectable on an EFS system sonobuoy?
1. 99
 2. 50
 3. 32
 4. 31
- 5-54. What total number of channels are used in the older sonobuoys that are preset at the factory?
1. 99
 2. 50
 3. 32
 4. 31
- 5-55. Which of the following information is stamped on both ends of a non-EFS system sonobuoy?
1. Depth setting and RF frequency
 2. Serial number and manufacturer's code
 3. Contract lot number and weight
 4. Sonobuoy type and RF channel number
- 5-56. The sonobuoy is aircraft deployable by what total number of methods?
1. Five
 2. Two
 3. Three
 4. Four
- 5-57. Sonobuoys equipped with parachutes and rotochutes are NOT intermixed in the same tactical pattern for which of the following reasons?
1. To maintain minimum interference between sonobuoys
 2. To maintain proper sonobuoy spacing in the water
 3. To prevent rotochute and parachute entanglement
 4. To prevent hydrophore cross talk
- 5-58. What component is deployed from a sonobuoy when the bottom plate is jettisoned?
1. The hydrophore
 2. The parachute/rotochute
 3. The antenna
 4. The float
- 5-59. What component(s) is/are deployed by some sonobuoys that have a seawater-activated battery that fires a squib?
1. A float and a hydrophore
 2. A float containing an antenna
 3. A hydrophore and an antenna
 4. A parachute/rotochute and a bottom plate
- 5-60. Most sonobuoys in the fleet contain what type of battery to provide power to the sonobuoy circuits?
1. Lithium dry cell
 2. Seawater-activated lithium
 3. Seawater-activated
 4. Zinc-oxide dry cell
- 5-61. Data transmission usually starts within at least how many minutes after the sonobuoy enters the water?
1. 1.0 minute
 2. 2.0 minutes
 3. 3.0 minutes
 4. 0.5 minute

5-62. What category of sonobuoy only has the listening feature?

1. Active
2. Passive
3. Special purpose
4. Multiple purpose

5-63. What system is an improved passive acoustic sensing system?

1. DIFAR
2. LOFAR
3. CASS
4. DICASS

5-64. What are characteristics of the sonar pulse output from the self-timed active sonobuoy?

1. Fixed pulse length and fixed pulse interval
2. Fixed pulse length and variable pulse interval
3. Variable pulse length and fixed pulse interval
4. Variable pulse length and variable pulse interval

5-65. The command activated sonobuoy will ping in response to command signals from what source?

1. The random generator in the CASS sonobuoy
2. The automatic generator in the CASS sonobuoy
3. The controlling aircraft
4. The underwater target

5-66. What is the BT temperature probe descent rate?

1. 15 feet per second
2. 10 feet per second
3. 5 feet per second
4. 4 feet per second

IN ANSWERING QUESTIONS 5-67 THROUGH 5-72, SELECT FROM COLUMN B THE TYPE OF SONOBUOY ASSOCIATED WITH EACH OF THE FUNCTIONS LISTED IN COLUMN A. SOME ITEMS IN COLUMN B WILL BE USED MORE THAN ONCE.

A. FUNCTIONS	B. TYPES OF SONOBUOY
--------------	----------------------

5-67. Used for submarine detection and localization	1. SAR 2. BT
---	-----------------

5-68. Measures water temperature	3. ATAC/DLC 4. CASS
----------------------------------	------------------------

5-69. Provides data for determining water depth	
---	--

5-70. Used as a floating RF beacon for rescue purposes	
--	--

5-71. Provides one-way voice communication	
--	--

5-72. Provides aircraft/submarine two-way communication	
---	--

5-73. How many separate sonobuoy channels can be received simultaneously on the AN/ARR-75 radio receiving set?	
--	--

1. 8
2. 16
3. 31
4. 99

5-74. What component of the SASP system is a high-speed signal processor used to extract acoustic target information from active and passive sonobuoy data?	
---	--

1. PP-7467
2. C-11104
3. TS-4008
4. SP-2143

5-75. What component of the SASP system controls the power to the CASS transmitter?	
---	--

1. PP-7467
2. C-11104
3. TS-4008
4. SP-2143